

REMARKS

Claims 1, 5, 13, 18, and 29 have been amended. Claims 44 and 45 have been cancelled without prejudice. Claims 46 and 47 are new, however, claim 47 is withdrawn from consideration because it corresponds to non-elected subject matter. Claims 1-13, 15-17 and 46 are currently pending in the application.

Request for Rejoinder Reminder

Applicants previously requested rejoinder of method claims 18, 20, 25-31, 33, 35, 39-43, and 45 upon allowance of the composition claims 1-13, and 15-17.¹ Towards that end, withdrawn claims 18 and 29 have been amended in a manner consistent with the pending composition claims.

Applicants further request rejoinder of new method of using claim 47 upon allowance of new composition claim 46.

Rejection of the Claims and Traversal Thereof

In the January 29, 2010 Office Action:

claims 13 and 45 were rejected under 35 U.S.C. §112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention;

claims 1-17 and 44 were rejected under 35 U.S.C. §102(b) as being anticipated by Wojtczak, et al. (U.S. Patent Application Publication No. US 2003/0078173);

claims 1-17 and 44 were rejected under 35 U.S.C. §102(b) as being anticipated by Wojtczak, et al. (U.S. Patent Application Publication No. US 2001/0050350);

claims 1-17 and 44 were rejected under 35 U.S.C. §102(b) as being anticipated by Seijo, et al. (U.S. Patent Application Publication No. US 2003/0181342);

¹ Rejoinder was previously requested in the response to the August 12, 2009 Office Action, filed November 9, 2009.

claims 1-17 and 44 were rejected under 35 U.S.C. §102(b) as being anticipated by Small, et al. (U.S. Patent Application Publication No. US 2002/0037820); and

claims 1-17 and 44 were rejected under 35 U.S.C. §102(b) as being anticipated by Ikemoto, et al. (U.S. Patent Application Publication No. US 2004/0029753).

These rejections are traversed and reconsideration of the patentability of the pending claims is requested in light of the following remarks.

Claim Rejections under 35 U.S.C. §112, second paragraph

In the January 29, 2010 Office Action, claims 13 and 45 were rejected under 35 U.S.C. § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention. Applicants traverse said rejection.

Claim 13 has been amended to recite the chemical names corresponding to the trade names of the recited compositions in accordance with the Examiner's suggestion. Claim 45 has been cancelled herein, thereby obviating this rejection.

Applicants respectfully request withdrawal of the rejection of claims 13 and 45 under §112, second paragraph.

Claim Rejections under 35 U.S.C. §102(b)

In the January 29, 2010 Office Action, claims 1-17 and 44 were rejected under 35 U.S.C. §102(b) as being anticipated by Wojtczak, et al. (U.S. Patent Application Publication No. US 2003/0078173) (hereinafter Wojtczak '173). Claims 1-17 and 44 were rejected under 35 U.S.C. §102(b) as being anticipated by Wojtczak, et al. (U.S. Patent Application Publication No. US 2001/0050350) (hereinafter Wojtczak '350). Claims 1-17 and 44 were rejected under 35 U.S.C. §102(b) as being anticipated by Seijo, et al. (U.S. Patent Application Publication No. US 2003/0181342) (hereinafter Seijo). Claims 1-17 and 44 were rejected under 35 U.S.C. §102(b) as being anticipated by Small, et al. (U.S. Patent Application Publication No. US 2002/0037820) (hereinafter Small). Claims 1-17 and 44 were rejected

under 35 U.S.C. §102(b) as being anticipated by Ikemoto, et al. (U.S. Patent Application Publication No. US 2004/0029753) (hereinafter Ikemoto). Applicants traverse said rejections.

Applicants' claim 1 recites:

“An aqueous-based removal composition comprising a fluoride source, at least one organic amine, at least one organic solvent, water, optionally at least one chelating agent, and optionally at least one surfactant, wherein the at least one organic amine comprises a species selected from the group consisting of N-(2-cyanoethyl) ethylenediamine, hydroxypropylpiperazine, aminopropylpiperazine, hydroxypropylmorpholine, aminoethylmorpholine, ethylene urea, trimethylaminoethylethanolamine, trimethylaminopropylethanolamine, and N-(2-cyanopropyl) ethylenediamine, and wherein said composition is useful for removing photoresist, bottom anti-reflective coating (BARC) materials, and/or gap fill materials from a substrate having such material(s) thereon.” (emphasis showing added limitations)

It is well established, as a matter of law, that a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of California*, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987).

Wojtczak '173 relates to a residue removing composition which includes a fluoride source, an amine or mixture of amines, a nitrogen-containing carboxylic acid or imine, water and optionally one or more metal chelating agents. The organic amines disclosed in Wojtczak '173 are as follows:

“Particularly preferred amines include one or more of the following:

*diglycolamine (DGA),
methyldiethanolamine (MDEA),
pentamethyldiethylenetriamine (PMDETA),
triethanolamine (TEA), and
triethylenediamine (TEDA).*

Other amines that are highly advantageous include:

*hexamethylenetetramine,
3,3-iminobis(N,N-dimethylpropylamine),
monoethanolamine
2-(methylamino)ethanol,
4-(2-hydroxyethyl)morpholine
4-(3-aminopropyl)morpholine, and
N,N-dimethyl-2-(2-aminoethoxy)ethanol.”* (see, Wojtczak '173, paragraphs [0031]-[0044]) (emphasis added)

Comparing Wojtczak '173's teachings with the applicants' claim 1, it can be seen that Wojtczak '173 is completely silent with regard to a species selected from the group consisting of N-(2-cyanoethyl) ethylenediamine, hydroxypropylpiperazine, aminopropylpiperazine, hydroxypropylmorpholine, aminoethylmorpholine, ethylene urea, trimethylaminoethylethanolamine, trimethylaminopropylethanolamine, and N-(2-cyanopropyl) ethylenediamine, as recited in applicants' claim 1. As such, Wojtczak '173 does not anticipate applicants' claim 1, or the claims depending therefrom. Withdrawal of the rejection of claims 1-17 and 44 under 35 U.S.C. §102(b) in view of Wojtczak '173 is respectfully requested.

Claims 1-17 and 44 were rejected under 35 U.S.C. §102(b) as being anticipated by Wojtczak '350. Applicants traverse the rejection.

Wojtczak '350 relates to a residue removing composition which includes a fluoride source, an amine or mixture of amines, a nitrogen-containing carboxylic acid or imine, water and optionally one or more metal chelating agents. The organic amines disclosed in Wojtczak '350 are as follows:

“Particularly preferred amines include the following:

*diglycolamine (DGA),
methyldiethanolamine (MDEA),
pentamethyldiethylenetriamine (PMDETA),
triethanolamine (TEA), and
triethylenediamine (TEDA).*

Other amines that are highly advantageous include:

*hexamethylenetetramine,
3,3-iminobis(N,N-dimethylpropylamine),
monoethanolamine”* (see, Wojtczak B, paragraphs [0030]-[0039])
(emphasis added)

Comparing Wojtczak '350's teachings with the applicants' claim 1, it can be seen that Wojtczak '350 is completely silent with regard to a species selected from the group consisting of N-(2-cyanoethyl) ethylenediamine, hydroxypropylpiperazine, aminopropylpiperazine, hydroxypropylmorpholine, aminoethylmorpholine, ethylene urea, trimethylaminoethylethanolamine, trimethylaminopropylethanolamine, and N-(2-cyanopropyl) ethylenediamine, as recited in applicants' claim 1. As such, Wojtczak '350 does not anticipate applicants' claim 1, or the claims depending therefrom. Withdrawal of the rejection of claims 1-17 and 44 under 35 U.S.C. §102(b) in view of Wojtczak '350 is respectfully requested.

Claims 1-17 and 44 were rejected under 35 U.S.C. §102(b) as being anticipated by Seijo. Applicants traverse the rejection.

Seijo discloses a cleaning formulation for removing particles, said formulation comprising a buffering system, a polar organic solvent, and a fluoride source. The components of the buffering system disclosed in Seijo include amines, which are recited as follows:

Conjugate bases useful in the buffering system of the present invention include but are not limited to: a salt of the organic acid, ammonia, tetramethylammonium hydroxide, tetraalkylammonium hydroxide, 2-(methylamino)ethanol, *monoisopropanolamine*, *diglycolamine*, *N,N-dimethyl-2-(2-aminoethoxy)ethanol*, *1-(2-aminoethyl)piperidine*, *1-(2-hydroxyethyl)piperazine*, *1-(2-aminoethyl)piperazine*, *1-(3-aminopropyl)-imidazole*, *1,8-diazabicyclo[5.4.0]undec-7-ene*, *N,N,N'-trimethylaminoethanolamine*, *pentamethyldiethylenetriamine*, *ethylmorpholine*, *hydroxyethylmorpholine*, *aminopropylmorpholine*, *triethanolamine*, and *methyldiethanolamine*.” (see, Seijo, paragraph [0035]) (emphasis added)

Comparing the teachings of Seijo with the applicants’ claim 1, it can be seen that Seijo is completely silent with regard to a species selected from the group consisting of N-(2-cyanoethyl) ethylenediamine, hydroxypropylpiperazine, aminopropylpiperazine, hydroxypropylmorpholine, aminoethylmorpholine, ethylene urea, trimethylaminoethylethanolamine, trimethylaminopropylethanolamine, and N-(2-cyanopropyl) ethylenediamine, as recited in applicants’ claim 1. As such, Seijo does not anticipate applicants’ claim 1, or the claims depending therefrom. Withdrawal of the rejection of claims 1-17 and 44 under 35 U.S.C. §102(b) in view of Seijo is respectfully requested.

Claims 1-17 and 44 were rejected under 35 U.S.C. §102(b) as being anticipated by Small. Applicants traverse the rejection.

Small relates to a composition for stripping photoresist, said composition consisting of:

“ammonium hydrogen fluoride, DMSO, water, and a basic amine selected from the group consisting of *hydroxylamine*, *hydrazine*, *2-amino-2-ethoxy ethanol*, *monoethanolamine*, *diethylhydroxylamine*, *choline*, *tetramethylammonium formate*, *monoisopropanolamine*, *diethanolamine*, and *triethanolamine*.” (see, Small, paragraph [0037]) (emphasis added)

Comparing the teachings of Small with the applicants' claim 1, it can be seen that Small is completely silent with regard to a species selected from the group consisting of N-(2-cyanoethyl) ethylenediamine, hydroxypropylpiperazine, aminopropylpiperazine, hydroxypropylmorpholine, aminoethylmorpholine, ethylene urea, trimethylaminoethylethanolamine, trimethylaminopropylethanolamine, and N-(2-cyanopropyl) ethylenediamine, as recited in applicants' claim 1. As such, Small does not anticipate applicants' claim 1, or the claims depending therefrom. Withdrawal of the rejection of claims 1-17 and 44 under 35 U.S.C. §102(b) in view of Small is respectfully requested.

Claims 1-17 and 44 were rejected under 35 U.S.C. §102(b) as being anticipated by Ikemoto. Applicants traverse the rejection.

Ikemoto relates to a resist stripping liquid comprising a fluorine compound, a solvent and/or water, wherein the solvent may include:

“Examples of the solvents include . . . formamide, monomethylformamide, dimethylformamide, monoethylformamide, diethylformamide, acetamide, monomethylacetamide, dimethylacetamide, monoethylacetamide, diethylacetamide, N-methylpyrrolidone, N-ethylpyrrolidone, N-methylcaprolactam . . . 1,3-dimethyl-2-imidazolidinone, 1,3-diethyl-2-imidazolidinone, 1,3-diisopropyl-2-imidazolidinone, γ-butyrolactone, 8-valerolactone, aminoethanol, diethanolamine, triethanolamine, isopropanolamine, 1-amino-3-propanol, diisopropanolamine, triisopropanolamine, dimethylaminoethanol, N-methylaminoethanol, diethylaminoethanol, aminoethoxyethanol, ethylenediamine, diethylenetriamine, triethylenetetramine, and tetraethylenepentamine.” (see, Ikemoto, paragraph [0012]) (emphasis added)

In addition to the solvent amines, Ikemoto also discloses hydrogen fluoride amines. (see, Ikemoto, paragraph [0010]). Comparing the teachings of Ikemoto with the applicants' claim 1, it can be seen that Ikemoto is completely silent with regard to a species selected from the group consisting of N-(2-cyanoethyl) ethylenediamine, hydroxypropylpiperazine, aminopropylpiperazine, hydroxypropylmorpholine, aminoethylmorpholine, ethylene urea, trimethylaminoethylethanolamine, trimethylaminopropylethanolamine, and N-(2-cyanopropyl) ethylenediamine, as recited in applicants' claim 1. As such, Ikemoto does not anticipate applicants' claim 1, or the claims depending therefrom. Withdrawal of the rejection of claims 1-17 and 44 under 35 U.S.C. §102(b) in view of Ikemoto is respectfully requested.

Regarding new claim 46, none of Wojteczak '173, Wojteczak '350, Seijo, Small or Ikemoto teach or suggest any of the disclosed organic solvents or chelating agents. Consideration of said claim is respectfully requested.

Petition for Extension of Time/Fees Payable

Applicants hereby petition for a one (1) month extension of time, extending the deadline for responding to the January 29, 2010 Office Action from April 29, 2010 to June 1, 2010. The fee of \$130.00 specified in 37 CFR §1.17(a)(1) for such one (1) month extension is hereby enclosed.

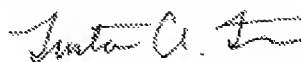
Two (2) claims have been added herein, one of which is independent, and two (2) claims have been cancelled herein, bringing the total number of pending and withdrawn claims to 34, three (3) of which are independent. As such, no added claims fee is due at this time.

The total fee of \$130.00 is being paid using Electronic Funds Transfer. In addition, the Office is authorized to charge any deficiency, or credit any overpayments, in applicable fees for this response to Deposit Account No. 13-4365 of Moore & Van Allen PLLC.

Conclusion

Claims 1-13, 15-17 and 46 are now in form and condition for allowance. If any additional issues remain, the Examiner is requested to contact the undersigned attorney at (919) 286-8090 to discuss same.

Respectfully submitted,



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